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tion at the meeting in London on July 5:—*Section A.—Mathematical and Physical Science*: Seismological investigations, £100; discussion of geophysical subjects, £10. *B.—Chemistry*: Colloid chemistry and its industrial applications, £5; non-aromatic diazonium salts, £7 7s. 8d. *D.—Zoology*: Inheritance in silkworms, £17. *F.—Economic Science and Statistics*: Women in industry, £10; effects of the war on credit, etc., £10. *H.—Anthropology*: Paleolithic site in Jersey, £5; archeological investigations in Malta, £10; distribution of bronze-age implements, £1; age of stone circles, £15; anthropological photographs, £1. *I.—Physiology*: The ductless glands, £9. *K.—Botany*: Heredity, £15; Australian Cycadaceæ, £17s.; Australian fossil plants, £15. *L.—Educational Science*: The "free-place" system, £5.

#### UNIVERSITY AND EDUCATIONAL NEWS

It is officially announced that Yale University will receive, as residuary legatee of the late John W. Sterling, about fifteen million dollars, which will nearly double the endowment of the university.

A SPECIAL three months' course at the New York University and Bellevue Hospital Medical College has been arranged for those who wish to qualify as laboratory assistants in bacteriological work for immediate service in the camps and hospitals. The course is arranged by Dr. William H. Park, director of the laboratories of the New York Health Department, and Dr. Anna M. Williams, assistant director. It will open September 4.

THE College of Physicians and Surgeons of San Francisco has discontinued the teaching of medicine, but will retain a nominal existence for the next three years so as to grant diplomas to such students as shall complete their work satisfactorily in other medical schools.

PROFESSOR M. E. GRABER, fellow in mathematical physics at the University of Chicago, has been elected to the professorship of mathematics in Heidelberg University, Tiffin, Ohio.

DR. E. V. COWDRY has accepted an appointment in the Peking Union Medical College, China.

DR. J. C. WHITTEN, for twenty-four years professor of horticulture and head of the department of horticulture of the University of Missouri, has been appointed chief of the division of pomology of the University of California. Dr. Whitten arrived in Berkeley the middle of August and will begin his work on September 1.

MR. R. DOUGLAS LAURIE, who has been chief demonstrator and assistant lecturer in zoology and lecturer in embryology in the University of Liverpool for some years, has been appointed head of the department of zoology in the University College of Wales, Aberystwyth.

#### DISCUSSION AND CORRESPONDENCE HAND-MADE LANTERN SLIDES

As well expressed by Dr. Gray in *SCIENCE*, July 12, 1918, p. 43, it is of advantage and often of the greatest convenience to be able to prepare quickly for projection a series of lantern slides showing diagrams, tabulated data, etc. Dr. Gray suggests the use of celluloid instead of gelatin sheets for this. Both the gelatin and the celluloid sheets must be supported by glass plates to hold them flat. Celluloid and gelatin receive the pen wall, and are far less expensive than regular photographic lantern slides.

It was found by the present writer that for all the purposes of simple diagrams, tables, etc., a still simpler method answers admirably. Advantage was taken of the device employed by the lantern-slide artists who made by hand all the lantern slides before photographic ones were invented (1850). The device consists of varnishing the well-cleaned glass with a very thin solution of some hard varnish. When the varnish is dry the pen or brush can be used upon the varnished surface with the same ease as upon good paper. India ink gives the sharpest images and a fine pen is to be used for the writing or drawing.

In preparing the slides the glass is held by the edges between the thumb and fingers

and the varnish poured on until the surface is covered, then the excess is drained off one corner and the glass is placed in a negative rack to dry. For a varnish, any good, transparent varnish may be used. It should be diluted to about one tenth the usual thickness. For the diluting substance xylene, toluene, turpentine, etc., may be used. Varnish diluted with xylene will dry on the glass in about half an hour if the room is dry and warm. If turpentine is the diluent it is better to let the varnish dry over night.

If the slide is to be used for a single exhibition it need not be covered and bound, but if it is to be permanent it is better to protect the surface by covering and binding as with photographic lantern slides.

If the slides are coated with 10 per cent. gelatin and dried one can also use the pen and brush well, but the varnish has proved a better coating.

These varnished glasses for hand-made lantern slides have been in use in different departments of Cornell University for the last six years and have proved very satisfactory.

It may be well to call attention to the fact that nearly all forms of celluloid are inflammable, and slides made of it might bring disaster.

SIMON H. GAGE

CORNELL UNIVERSITY,  
July 30, 1918

#### THE HOUSE FLY

TO THE EDITOR OF SCIENCE: The accompanying paper was written by one of my students in elementary biology within one month of the opening of the course. It happened that the house fly was providing the material for laboratory work at that time. And it also happened that several students were attracted by the inconclusive statements in several textbooks regarding the function of the so-called *balancers*—which they had already recognized as probably representing the second pair of wings. Experiments were thereupon encouraged to clear up the situation. At first results were conflicting, owing to excusable defects in operative technic. Mr. Whealdon,

however, succeeded in reaching unequivocal results, which he embodied in the report that is printed below just as he wrote it.

My purpose in bringing this report to your attention is primarily pedagogical. The facts established by Mr. Wealdon can not lay claim to novelty, as he later discovered. But the method of permitting a student in an elementary course at the very beginning of his work to occupy himself in laboratory hours with a problem he himself had raised and frankly to regard such work as a research—which indeed it is in every essential—to be carried to a real conclusion, quite regardless of the activities of the other students in the laboratory; this method, which subordinates prearranged plans by the instructor to the encouragement of student initiative, may be still sufficiently uncommon in American schools and colleges to justify submitting the accompanying evidence of its efficiency.

HARRY BEAL TORREY

#### THE BALANCERS OF THE HOUSE FLY

##### *Report of Some Experiments to Determine their Use*

*Experiment 1.*—I put two flies of apparently equal vigor, but differing slightly in size and coloring of the abdomen, under the influence of ether. From one of them I removed the balancers by means of very sharp pointed scissors. The other I left untouched, using him merely as a check, by which I could compare the actions of the two as they came out from the influence of the anesthetic. This process I repeated with two more flies, then placed them in pairs, one clipped fly with one unclipped, under bell jars, and observed their behavior.

Through the difference in size and marking I was able to identify the unclipped flies and noted that they appear to recover from the influence of the anesthetic sooner than the clipped flies in both cases. As soon as the flies with the balancers removed recovered from the effects of the ether they commenced to rub themselves with their hind legs, stroking their abdomen and wings almost continuously, even lifting their legs quite above the wings and